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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,479	09/23/2003	Laurent C. Bissonnette	20002.0327	9070

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BINGHAM MCCUTCHEN LLP
2020 K Street, N.W.
Intellectual Property Department
WASHINGTON, DC 20006

EXAMINER

HSU, RYAN

ART UNIT	PAPER NUMBER
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3714

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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Office Action Summary	Application No. 10/667,479	Applicant(s) BISSONNETTE, LAURENT C.	
	Examiner Ryan Hsu	Art Unit 3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/23/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Drawings***

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figs. 2-5 of the drawings fail to meet 37 CFR 1.83(l), “lines, numbers & letters not uniformly thick and well defined, clean, durable, and black (poor line quality)”. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 19 is rejected under 35 U.S.C. 102(b) as being anticipated by Ermert et al. “A New Concept For A Real-Time ultrasound Transmission Camera” 2000 IEEE ULTRASONICS SYMPOSIUM.

Regarding claim 19, Ermert discloses an ultrasonic imaging method comprising: emitting a plurality of ultrasonic sound waves towards a target area (*see Fig. 1-2 and the related description thereof*); and activating an imaging system to determine the kinematics of at least one object within the target area (*see Figs. 1-3 and the related description thereof*).

Regarding claims 20 and 22-23, Ernert discloses a method wherein the frequency of the ultrasonic sounds waves is between 10 and 500 KHz as this is inherent with any ultrasonic device since this is the optimum range in which ultrasonic sound waves travel (*further evidenced by Wikipedia's Ultrasound*). Additionally, Ernert's ultrasonic imaging device inherently comprises sound waves that have periodic pulses that have a duration of between about 10 and 5000 microseconds. As a periodic pulse is the time in which it takes a waveform to travel from peak to peak. This is calculated using the basic physic formula to determine frequency which is $f = 1/T$ [period]. A simple translation of the frequency range that derives the ultrasound bandwidth would derive a period pulse in the range required by the applicant's invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over
Ernert et al. "A New Concept For A Real-Time ultrasound Transmission Camera"
2000 IEEE ULTRASONICS SYMPOSIUM.**

Regarding claim 21, Ernert et al. teaches an ultrasonic imaging method however is silent with respect to an area of sonification having a diameter between about six inches and about two feet and beam angle that is between 1 and about 30 degrees. It is well known in the art that the propagation of waves deteriorates over a certain distance and degrees. As the farther a wave propagates the farther from the original source the

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weaker the signal becomes. In the art of sound imaging in order to produce a useable image a certain optimal range must be kept in order to produce an effective result.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to limit the use of the imaging device to the discovered effective range of the invention. Furthermore, it has been held that discovering optimum ranges and values of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (US 5,342,054) and further in view of McTeigue et al. (US 5,372,365).

Regarding claim 1, Chang et al. teaches an imaging system for determining the kinematics of an object, comprising: an trigger (*see sensor array [20,22] of Fig. 1 and the related description thereof*); and a camera operatively connected to a trigger to capture optical images of one or more objects (*see camera 26, 28, and 30 of Fig. 1 and the related description thereof*). However, Chang et al. is silent with respect to a trigger that uses ultrasonic waveforms.

In a related golfing system patent, McTeigue et al. teaches that convenient methods of transmission devices to communicate user signals (*ie: a trigger*) may take the form of analogue or digital signals by means of radio frequency or other electromagnetic wave forms, e.g. infrared or ultrasonic transmitters and receivers (*see col. 10: ln 25-56*). As McTeigue teaches that one would be motivated to implement an ultrasonic device as a common triggering device alternative, it would have only taken one of routine skill in the art to recognize its equivalence to that of the sensor array taught in Chang, Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was

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made to modify the reference of Chang with that of McTeigue to incorporate an art recognized equivalent into the triggering device to form an ultrasonic trigger instead of the disclosed sensor array of Chang.

Regarding claim 12, McTeigue et al. teaches a system for simultaneously measuring golf club properties and golf ball properties during a golfer's striking of a golf ball, the system comprising: a first camera and a second camera, each of the first and second cameras focused towards a predetermined field of view (*see camera [28, 30] of Fig. 1 and the related description thereof*); a golf club having at least one optical marker; a golf ball within the predetermined field of view (*see Fig. 1 and the related description thereof*); and a trigger disposed prior the golf ball along a path of a golf club swing, the trigger capable of estimating the golf club speed (*see Fig. 7 and the related description thereof*). However, Chang et al. is silent with respect to a trigger that uses ultrasonic waveforms.

In a related golfing system patent, McTeigue et al. teaches that convenient methods of transmission devices to communicate user signals (*ie: a trigger*) may take the form of analogue or digital signals by means of radio frequency or other electromagnetic wave forms, e.g. infrared or ultrasonic transmitters and receivers (*see col. 10: ln 25-56*). As McTeigue teaches that one would be motivated to implement an ultrasonic device as a common triggering device alternative, it would have only taken one of routine skill in the art to recognize its equivalence to that of the sensor array taught in Chang, Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the reference of Chang with that of McTeigue to incorporate an art

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recognized equivalent into the triggering device to form an ultrasonic trigger instead of the disclosed sensor array of Chang.

Regarding claim 2, Chang et al. teaches an imaging device wherein the object comprises at least one of a golf ball and a golf club (*see golf ball [102(a-b) and 100(a-b)] of Fig. 7 and the related description thereof*).

Regarding claims 3-4, 9-10, 13, and 17-18, McTeigue et al. teaches a method wherein the frequency of the ultrasonic sounds waves is between 10 and 500 KHz as this is inherent with any ultrasonic device since this is the optimum range in which ultrasonic sound waves travel (*further evidenced by Wikipedia's Ultrasound*). Additionally, McTeague's ultrasonic transmissions inherently comprises sound waves that have periodic pulses that have a duration of between about 10 and 5000 microseconds. As a periodic pulse is the time in which it takes a waveform to travel from peak to peak. This is calculated using the basic physic formula to determine frequency which is $f = 1/T$ [*period*]. A simple translation of the frequency range that derives the ultrasound bandwidth would derive a period pulse in the range required by the applicant's invention.

Regarding claims 5-7 and 14-15, McTeigue et al. teaches an ultrasonic imaging method however is silent with respect to an area of sonification having a diameter between about six inches and about two feet and beam angle that is between 1 and about 30 degrees. It is well known in the art that the propagation of waves deteriorates over a certain distance and degrees. As the farther a wave propagates the farther from the original source the weaker the signal becomes. In the art of sound imaging in order to produce a useable image a certain optimal range must be kept in order to produce an effective result. Therefore it would have been obvious to one having ordinary skill in the

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art at the time the invention was made to limit the use of the imaging device to the discovered effective range of the invention. Furthermore, it has been held that discovering optimum ranges and values of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 8, 11, and 16, McTeigue et al. teaches a ultrasonic device that inherently emits sound waves periodically (*see col. 10: ln 25-56*). Additionally, McTeigue teaches a periodic sound wave that comprise pulses, wherein the time period between the pulses is greater than or equal to twice the distance from the ultrasonic trigger to a target area (*see col. 10: ln 25-56*).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lubell et al. (US 5,797,805) – Method and System for Producing Personal Golf Lesson Video.

Nashner et al. (US 5,697,791) – Apparatus and Method for Assessment and Biofeedback Training and Body Coordination Skills Critical and Ball-Strike Power and Accuracy During Athletic Activities.

Burns (US 5,904,484) - Interactive Motion Training Device and Method.

Any inquiry concerning this communication or earlier communication from the examiner should be direct to Ryan Hsu whose telephone number is (571)-272-7148. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert E Pezzuto can be reached at (571)-272-6996.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, contact the Electronic Business Center (EBC) at 1-866-217-9197 (toll-free).



RH

March 30, 2007



SCOTT JONES
PRIMARY EXAMINER